

REMARKS

This Amendment, submitted in response to the Office Action dated November 4, 2003, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

As preliminary matters, the Examiner has indicated that conditions of priority have not been satisfied because the Examiner contends that the specification does not refer to a prior application and relationship thereto. Applicant would note that the transmittal letter of May 9, 2001 included the required modification to the disclosure. Nonetheless, Applicant has amended the specification accordingly.

The Examiner has also objected to the Abstract, specification and claims. Amendments have been made to the Abstract, specification and claims as set out above.

Turning to the merits of the Office Action, claims 1-44 remain pending in the application. Claims 13-17 and 24-28 have been rejected under 35 U.S.C. § 112, second paragraph. Claims 1-14, 16-25 and 27-28 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Hidaka (U.S.P. 6,320,980). Claims 29-44 have been rejected under 35 U.S.C. § 103 as being unpatentable over Hidaka in view of Dundas (U.S.P. 5,604,567). Claims 15 and 26 have been rejected under 35 U.S.C. § 103 as being unpatentable over Hidaka in view of Lovibond (U.S.P. 363,835). Applicant submits the following comments in traversal of the prior art rejections.

With regard to the Section 112 rejections, amendments are set out above .

Turning to the prior art rejections, Applicant's invention relates to a method and apparatus for matching characteristics of a standard print medium used in a color proof to a

desired medium used in later printing. Applicant observed that in conventional proofing techniques, the characteristics of the proofing print medium would not accurately reflect the print characteristics of the desired output medium. The present invention obviates these deficiencies.

Referring to Applicant's Fig. 2, for example, a color chart 42A includes five color patch groups including 125 patches. A central patch group 73 is formed of colorimetric values for $L^*a^*b^*$ according to a standard print profile (Fig. 1, element 26). Color patches positioned on the periphery of patch 73 have colorimetric values incremented by $+\Delta a$, $+\Delta b$, $-\Delta a$ and $-\Delta b$. As shown in Fig. 3, a print sheet 80 corresponds to a desired print medium, and is visually matched with one of the color patches of chart 42A. The closest match provides colorimetric values $X\alpha$, $Y\alpha$ and $Z\alpha$ which become incorporated into a color conversion to take into account differences between a standard print medium for proofing and desired medium. In lieu of the color chart, a colorimetric measurement may also be made of the desired medium to ascertain values $X\alpha$, $Y\alpha$ and $Z\alpha$.

Turning to the cited art, Hidaka relates to a method to compensate for visual differences in an output by matching a color body source with a specific light source. Referring to Fig. 5, data conversion unit 300 converts $R1$, $G1$, $B1$ image data input from a scanner into $R2$, $G2$, $B2$. The conversion is successively input to scanner unit 301, conversion unit 302 and monitor unit 303. The conversion result is such that data light source $R1$, $B1$, $G1$ and $R2$, $B2$, $G2$ are matched with each other. The conversion unit outputs $R2$, $G2$, $B2$ data to a monitor 30. The data converter 300 corrects for defects in the scanner. Col. 6, lines 10-20. The data is corrected in $X1$, $Y1$, $Z1$ space to account for the scanner defects and also, the body color source is converted

to light source data on the basis of predetermined coefficients k_r , k_g and k_b . Col. 6, lines 21-25. In relevant part k_r , k_g and k_b are obtained by visually matching known color body and light source tristimulus values displayed to a monitor. The matched value for the light source X_{1i} , Y_{1i} and Z_{1i} is ascertained and the known tristimulus value of the color body is known, to obtain the k_r , k_g and k_b conversion factors between the matched light source and original color body. Col. 5, lines 3-16. The X_2 , Y_2 and Z_2 data is output as R_2 , B_2 , and G_2 based on a color matching process using color charts. In particular, referring to Fig. 6, printed color chart 401 is visually compared to color chart output by a monitor and the monitor output is manually adjusted until the color chart images become matched.

Dundas relates to a method and apparatus for adjusting for gray scale and color of an output printer. In relevant part, a test pattern of Fig. 9 or Fig. 10 is used to set a central target having a grey level. If none of the patches has a grey color, then the overall color balance is adjusted according to Table 1 (cols. 8-9) in order to obtain the central grey target.

Lovibond relates to a form of colorimeter measuring depth of color for a single color. The color is scaled based on a number of units (coloring agents) to produce a shade of color. Col. 1, lines 15-22.

The Examiner contends that Hidaka teaches each feature of claim 1. Applicant would submit that the rejection is not supported for at least the following three reasons.

First, Hidaka relates to obtaining a color output whereby the color body used as a print material is matched adequately with a light source. By contrast, claim 1 describes color matching characteristics between a standard print medium and a desired print medium. Though

Hidaka describes color conversions at a general level, the objects that the references seeks to achieve fundamentally differ from that of Applicant's invention, as described by claim 1.

Second, the Examiner's reliance on column 6, lines 21-25 to teach conversion of between colorimetric data fails to take into account the full recitation of claim 1. Claim 1 does not merely describe color conversion between spaces, but color conversion between spaces to correct a difference between color of a desired print medium and color of a standard print medium. The citation to col. 6, lines 21-25 only relates to color conversion to match a color body X_1 , Y_1 , Z_1 and a light source X_2 , Y_2 and Z_2 using some predetermined correction factors k_r , k_g , k_b . No aspect of Hidaka teaches correction of differences of two print media.¹

Third, as a related matter, the Examiner's reliance on col. 6, lines 42-51 to teach production of a color proof that corrects for the color differences is not supported. The cited portion relates to visual color chart matching between a printed chart 401 and an electronically output chart using X_2 , Y_2 , Z_2 to obtain R_2 , B_2 , G_2 . A critical defect in the Examiner's rejection is that the Examiner relies upon R_1 , G_1 , B_1 scanner output data as corresponding to colorimetric data obtained from the first device dependent color space given to a standard print medium. However, the Examiner then relies on the introduction of an entirely different element (color chart 401) for the proof production. However, the chart does not correspond to any prior standard print medium cited by the Examiner. Thus, Hidaka fails to provide any correction relative to the standard print medium. The relational aspects between the first "converting

¹ Moreover, to the extent that the Examiner would consider X_{1i} , Y_{1i} , Z_{1i} as corresponding to the standard print medium, there is no teaching in Hidaka that the data is derived from a first device dependent image data as claimed.

device-dependent” space recitation and the “producing a proof” recitation is not met by Hidaka. Claim 1 describes proof production that takes into account differences relative to a standard print medium in producing the proof. Therefore, claim 1 is patentable for at least these reasons.

Because independent claims 2, 7-8, 13, 18 and 21 include similar recitations for correcting for a difference between a standard print medium and a desired print medium, these claims are also patentable for the reasons set forth above for claim 1. The remaining claims are patentable at least based on their dependency. The secondary references do not make up for the above deficiencies of Hidaka.

With further regard to claims 3-4, 9-10 and 19, these claims describe color correction based on color patches with colorimetric values about the color of the standard print medium. To the extent Hidaka discloses color charts, the color chart information does not pertain to a standard medium. The Examiner’s reliance on col. 8, lines 4-8 merely indicate that matters of gray scale may be output. This does not inherently have any relationship to the standard print medium.

With further regard to claims 29-44, the Examiner contends that the combination of Hidaka and Dundas teaches or suggests each feature of these claims. The rejection is not supported for at least the following reasons.

As an initial matter, the references are not properly combined. While the Examiner contends that each of Hidaka and Dundas relate to color correction, the references relate to different aspects of correction. In Hidaka, the processing relates to an object body and a lighting source. In Dundas, the processing relates to an output printer, in particular grey scale control.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/851,164

Color correction art is sufficiently complicated that one seeking to match a color material with a light source would not turn to printers, where the primary concern is control of ink balance. Thus, while relatedness in a general field of endeavor is a requirement for combining references, it is not a sufficient basis for combining Hidaka and Dundas in this case.

In addition, the Examiner contends that the combination would be obvious to ease the presentation of color patches. However, to the extent that Hidaka already displays color patches, there is no reason why one skilled in the art would combine Hidaka with Dundas for purposes of viewing color patches. The proffered reason for motivation is not supportable.

With regard to claims 29, 33, 37 and 41, these claims describe a central patch as being matched to a color of the standard print medium. Even assuming arguendo that the references may be combined, their combination does not teach this aspect of these claims. Dundas teaches a central area as having a grey balance. This does not explicitly or inherently relate to a standard print medium. The remaining claims 30-32, 38-40, 34-36 and 42-44 are patentable based on their dependency.

With further regard to claims 15 and 26, the Examiner contends that the combination of Hidaka and Lovibond teaches each feature of the claims. Applicant would note that Lovibond relates to a color shade measurement device that is incapable of measuring the subtle density changes contemplated by the invention and the primary Hidaka reference. The combination is not supported.

In view of the above, Applicant submits that claims 1-44 are in condition for allowance. Therefore it is respectfully requested that the subject application be passed to issue at the earliest

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/851,164

possible time. The Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER


Susan Perng Pan
Registration No. 41,239

Date: February 4, 2004